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COLONY OF SEYCHELLES

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1949

Printed by the Head Printer,
At the Government Printing Office
Victoria, Mahé — Seychelles.

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Annual Report of the Department of Agriculture for the year 1949.

SECTION I. AGRICULTURE IN THE COLONY.

1. *Meteorological Conditions.*

Rainfall for the year 1949 recorded at the Port Office, Victoria, was 70.43 inches, well below the thirty years average up to 1936, of 95.6 inches. On the West Coast and at South Mahé rainfall was generally higher, whilst at the nearby islands of Praslin and La Digue, 52.53 inches and 49.57 inches respectively, were recorded.

The following table records the rainfall and air temperature taken at the Port Office, Victoria :—

Rainfall and Air Temperature, Victoria.

1949 Month.	Rainfall Inches.	Air Temperature °F Mean Max.	Mean Min.	Highest Max.	Lowest Min.
January	2.50	85	77	87	71
February	13.24	85	76	89	73
March	5.21	87	78	89	73
April	1.20	88	79	91	75
May	3.91	86	77	89	72
June	3.87	84	77	86	73
July	2.18	82	76	84	71
August	6.30	82	76	84	71
September	1.99	83	77	87	72
October	9.53	84	76	87	73
November	6.89	84	74	86	71
December	13.61	84	74	88	72
Total	70.43	—	—	—	—

The South-East monsoon season extends from mid-May to mid-October and is characterized by light rainfall and relatively cool periods. The North-West monsoon, from the end of October to May, has higher temperatures with a climax in April, and usually heavy rainfall between December and February. In 1949, rainfall was light but little or no actual drought was experienced.

2. *Coconut Industry.*

As mentioned in last year's Annual Report, all 1948 copra for export from the Colony was shipped by the end of that year. The actual quantity of copra exported during 1949 amounted to 5,658 tons valued at Rs. 3,960,837. In addition 642 tons, valued at Rs. 449,131, which formed part of 1949 production, received in the Copra Sheds, Victoria, at the close of the year, were not exported until 22nd February, 1950. Thus total production of copra for the year 1949 amounted to 6300 tons, valued at Rs. 4,409,968.

Under the contract with the Ministry of Food, the whole exportable surplus copra crop for the year was sold to the Ministry at an agreed price of £52 — 10 — 0 f.o.b. Coupled with high production, this enhanced sale price resulted in the highest value ever obtained for Seychelles copra. The local selling price of copra remained steady at Rs. 510—520 per ton throughout the year.

The quality of the exported copra was maintained at a high standard by careful control in the storing sheds. During the year, forty-five lots of copra, upon examination, were found to contain extraneous matter and to be either too moist or mouldy and were therefore declared unfit for export. In addition, nineteen samples of copra with doubtful moisture content, were submitted by the Produce Inspector for examination at the Laboratory of the Department of Agriculture.

Owing to the high price realized by copra during 1949, many estate-owners progressed with a manuring programme. This should prove a great asset for the future, for most of the coconut palms of the Colony receive little or no manure and are capable of much improvement.

As mentioned in last year's report, some fifty-five bullock-powered coconut mills operated throughout the islands for the production of coconut oil. The latter is especially used for cooking and soap manufacture. The total quantity of oil produced in 1949 amounted to 13,739 "touques" or 277,527 kilos, one "touque" weighing 20.2 kilos. A valuable by-product of the coconut oil industry is coconut cake or poonac, which is used in the feeding of livestock. Local poonac contains a high percentage of oil i.e. 30 per cent, and is not therefore really suitable as a food for cattle, pigs and poultry. Provision has been made to install an oil-expressing plant in 1951, which will be erected at Grand Anse (Government) Estate. This will produce a copra cake containing 6 per cent oil ; such a cake will assist greatly in the development of livestock in the Colony.

Another aspect of the coconut industry is toddy tapping of the coconut inflorescence. A thin slice is cut from the tip or end of the latter every day by means of a knife and the sap oozing from the cut surface is collected in bamboo pots and is allowed to ferment. Fermented toddy contains as much as 8 per cent alcohol. Toddy and bacca, which is fermented sugar cane juice containing some 6 to 7 per cent alcohol, are the local beers consumed by the labour force. Fermented toddy may also be allowed to turn into fair quality vinegar. Permits for tapping toddy from a restricted number of coconut trees are issued by the Excise Department upon payment of a fee of Rs. 25/— per palm bi-annually. During 1949 some 3,970 permits were issued. The yield of toddy varies with the palm and locality. The average yield per day being 4 to 5 pints.

3. *Essential Oils Industry.*

The year 1949 was generally satisfactory for the essential oils industry. The essential oils that are produced in Seychelles consist of cinnamon leaf oil and patchouli oil.

(a) Cinnamon Leaf Oil.

Some 70 tons of cinnamon leaf oil were exported in 1949. This figure compares favourably with 57 tons in 1947 and 40 tons in 1948. The impetus to the cinnamon leaf oil industry was due to a marked increase in prices. The local selling price of oil, which was Rs. 5.50 to Rs. 5.65 per kilo at the beginning of the year, rose to Rs. 8.25 to Rs. 8.50 per kilo, due to the devaluation of the pound sterling. Almost all the oil exported was sold on the American Market.

(b) Patchouli Oil.

Although the quantity of patchouli oil exported in 1949 was less than that in 1948, a fillip to the industry was given by a rise in price in the middle of the year. Demand for the oil exceeded production. The price continued to rise and reached a peak at the end of the year. The local selling price which was Rs. 22/— Rs. 25/— per kilo in January, 1949, reached Rs. 100 — Rs. 150 per kilo in December. Old plantations which had been abandoned in 1948 were renewed and new areas planted. These efforts, coupled with abundant rain in 1949, should result in a large crop in 1950.

The following table gives the export figures and their respective values of cinnamon leaf oil and patchouli oil during the last three years :—

Export of Essential Oils.

	1947		1948		1949	
	Quantity Kgs.	Value Rs.	Quantity Kgs.	Value Rs.	Quantity Kgs.	Value Rs.
Cinnamon Leaf Oil	57,357	418,291	40,114	271,713	70,404	509,808
Patchouli Oil	9,005	630,715	1,927	91,445	1,664	63,777

(c) Cinnamon Bark.

The total quantity of cinnamon bark exported during 1949 amounted to 59 tons. This figure is the lowest recorded for the last five years. This may be attributed to lack of markets and to the low selling price, which discouraged production. At the beginning of the year there was no demand for this commodity. Later, orders were received and the local selling price rose to Rs. 105 per ton. This price increased to Rs. 150 — Rs. 175 per ton. At the close of the year the local selling

price had advanced to Rs. 200 per ton. Seychelles cinnamon bark, which is cropped from trees of varying age growing wild on the hillsides of Mahe, is of a different quality from the famous quills of Ceylon, competing on the European market with cassie bark, which is used as a spice.

For a number of years the efforts of the Department have been directed towards the production of cinnamon bark oil, which might replace export of cinnamon bark, thus lowering freight charges. These efforts first tended towards the production of an oil similar to Ceylon oil of B. P. Standard. However it was finally decided to concentrate on the production of a Seychelles oil, of lower commercial value than Ceylon oil, but still marketable. Here too, considerable difficulties have been encountered on the part of both producers and buyers. The latter are reticent about a new product, upon the supply of which they cannot rely, while the former are disinclined to enter a market for which there is no guarantee.

The following table gives export figures and their relative values of cinnamon bark for the past three years :—

Export of Cinnamon Bark.

1947		1948		1949	
Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.	Quantity Tons.	Value Rs.
861	71,002	117	25,764	59	8,435

4. *Vanilla Industry.*

The export figure for vanilla pods during 1949 is 5,933 kilos, against 3,643 kilos in 1948 and 516 kilos in 1947. Of this quantity, 3,020 kilos, valued at Rs. 48,859, had been sold by the end of the year ; the rest remained unsold on the United Kingdom market. The price of the commodity was very low at the beginning and during the major part of the year, being at an uneconomical level. Towards the end of the year the price showed a rising tendency, reaching the sum of 12 shs. to 18 shs. per lb. Lack of market and low selling price are a common feature of this industry and constitute a great handicap to its improvement and development. The largest areas under cultivation are on the island of Praslin where the plants are grown mostly on living posts under fairly heavy shade.

5. *Salt Fish Industry.*

Some 200 tons of salt fish, valued at Rs. 78,016, were exported during 1949. The corresponding figures for 1948 are 55 tons valued at Rs. 35,421. Thus, although the quantity of salt fish exported during 1949 is almost four times that exported during 1948, the value of the produce for the former year is not more than twice that for the latter

Notwithstanding this decrease in the value of salt fish, the fish industry is still a paying proposition in the Seychelles, and is the object of considerable interest to Government as well as to private firms. As during 1948, the great bulk of last year's production of salt fish was exported to Tanganyika.

Dr. C. F. Hickling, Fisheries Adviser to the Secretary of State, visited the Seychelles in July, 1949, while on a tour to East Africa, Mauritius and the Seychelles. He is reported to have been impressed by the richness in fish population of the extensive fishing banks in the vicinity of the Seychelles. At a meeting of the Fisheries Committee of the Seychelles, held at Victoria on the 20th of July, 1949, Dr. Hickling referred to the market possibilities for Seychelles salt fish. He pointed out that although a relatively large amount of salt fish was imported in East Africa from Arabia, during the North-East monsoon of 1949, little or no fish came during the other monsoon. Dr. Hickling mentioned that there were important opportunities for the salt fish trade between the Seychelles and East Africa and undertook to make inquiries upon his return to East Africa. Dr. Hickling also emphasized about the importance of maintaining a good quality salt fish by examination of produce prior to shipment.

A Fishery Research Survey on these banks, which should prove of considerable value to the future development of the fish industry in the Seychelles, that had been started in December, 1947, under the able direction of Dr. J. F. G. Wheeler and Dr. F. D. Ommaney, terminated in December, 1949.

Investigations were carried out during 1949 by officials of the Colonial Development Corporation as to the opportunity of establishing a fishing industry in the Seychelles. The undertaking is to concentrate on the export of dried salt fish to East Africa from the islands. At the time of writing it has been decided to establish such an industry. The fishing base will be situated on St. Anne Island, near Victoria, where a portion of land will be leased to the Corporation for that purpose. Production is expected to start early in 1951.

6. Tobacco

There is a small tobacco industry in the Colony from which leaf is used to manufacture tobacco plugs and cigarettes. Cultivation is undertaken during two seasons. Seeds are sown in March and the crop harvested in October, and a second sowing in August is harvested in March. The type of soil on which the crops are raised is the low-lying calcareous sandy "plateaux" of coral origin.

Tobacco plugs are prepared from the dried leaf, the mid-rib of which is removed, and then compressed by means of a stout string into bundles containing some 2½ lbs. of leaf. Average annual production is reported to vary between 12,000 and 15,000 plugs or "carottes" as the plugs are called locally, which are sold from Rs. 10 to Rs. 15 per "carotte". This produce is a typical peasant industry, small patches of tobacco being grown by small-holders, and labourers, all over the islands to produce "carottes" or plugs. The cigarettes are made from leaf grown mostly in Praslin; much of this is grown by labourers who plant the crop on a share system. One kilo of dried tobacco leaves produces some 1,200 cigarettes.

7. *Other Industries*

The following table gives the export figures and values for the produce of the minor industries of the Colony:—

Export of Guano and Fishery Products.

Product.	Quantity.		Value. Rs.
Guano	14,018	tons	349,709
Calipee	476	kilos	7,194
Shark fins	3,855	,,	5,398
Trepangs	392	,,	704

Calipee is the boiled and dried cartilage uniting the bone and the plastron of the green turtle to its shell. Trepangs are sea slugs.

No sea birds's egg yolk was exported during the year. Limited numbers of sea bird eggs were sold at Mahe during the season at a price of 3 cents for two eggs. In the past vast numbers of eggs of the Sooty Tern "Goelette" and to a small extent the Common Noddy "Macoa" were collected during the season May to July from certain islands. In spite of restrictions regulating the period when eggs may be taken, there is reason to believe that these sea birds have decreased considerably.

8. *Conditions on Estates.*

Generally the labour situation was satisfactory. This, coupled with the increased prices received for copra and cinnamon leaf oil, was an inducement to land owners to clean their coconut groves, manure their palms, and bring in increased crops of cinnamon leaves to the distilleries. As mentioned elsewhere, little or no manuring is usually undertaken with coconuts and many areas under this crop are capable of much improvement. The manuring programme started on some of the larger estates has been a satisfactory feature during the year.

A Wages Committee appointed by Government sat during the latter part of the year to determine the increase in the cost of living for agricultural and other labourers, since the publication of minimum wage rates in 1945. As a result of this inquiry the committee recommended that the minimum wage rate for agricultural labourers should be increased as follows:—

Men Rs. 18/50 per month for a working week of 33½ hours and Rs. 22/50 per month for a 40 hours week. Women, Rs. 9/50 per month for a working week of 33½ hours week. This particular recommendation was approved by Government and became law on 1st January, 1950.

9. *Pests and Diseases*

(a) RATS.

These are still a major pest of coconut palms in the Colony. It has been estimated that some ten million coconuts are destroyed annually by rats. This number could be considerably reduced by better co-operation

among estate owners. Unfortunately, those estates where rats destruction is practised often adjoin properties overrun by rats which constitute constant source of infestation.

The methods of extermination adopted are trapping and poisoning. A premium of 5 cents per rat tail is paid by Government as a reward. Rat poison is sold by the Department of Agriculture to those who require it. Some 100,000 rats were trapped during 1949. This figure, though very satisfactory, is less than in former years, i. e. 134,000 rat in 1948 and 120,000 in 1947.

Three Cape Barn Owls, *Tyto alba*, were introduced from East Africa in March for trial in rat control. The birds, which are known to feed almost exclusively on small rodents, were first kept at the Botanical Gardens, Victoria, and fed on a sole diet of rats. Later the birds were liberated on Platte Island, an isolated coral island, 125 acres in area, situated some 75 miles from Mahe. Due to its isolation and to the great number of rats existing on it, the island is well suited for the experiment. The owls are reported to have settled down well and to be doing good work. It is said that gnawed nuts are by no means as conspicuous as before and in some areas are even absent. Moreover from information available it appears that the owls are feeding solely on rats.

(b) Melittomma insulare, Fairm.

The situation is approximately the same as last year regarding this extremely serious pest of the coconut palm in Seychelles. Some Estates, especially at Praslin, suffer from severe infestations and are greatly handicapped.

The remedial measures recommended are those which aim at destroying the breeding centres and are based on systematic sanitation in the coconut groves. During the year trials were made at Praslin on an estate suffering badly from this pest, using the wood preservative "Santobrite" (Sodium penta-chlor phenate) and an insecticide of the well-known Agrocide series; Agrocide — 7. The method of application consisted of painting, brushing, or spraying the trunks of attacked palms with emulsions or solutions of these substances, in an endeavour to destroy the Melittomma larvae when they emerge from their galleries on the surface of the trunks. No results were obtained with santobrite. Agrocide — 7, on the other hand, seemed to be effective to a certain extent, as traces of the pests disappeared from the trees after treatment. Unfortunately, due to acute shortage of staff, the experiment had to be curtailed. Another potent insecticide, the newly discovered Parathion or O, O—diethyl -O-para-nitrophenyl thiophosphate, was recieved at the end of the year and will be used, together with agrocide — 7, in more trials as soon as possible

(c) Oryctes Mooncros ol.

This beetle is on the whole a minor pest of the coconut plantations in Seychelles. Sporadic outbreaks occur at some places but the damage is restricted. The method of control adopted where outbreaks are common consists in collection of the larvae from decomposing vegetable matter, particularly heaps of rotting cinnamon leaves. Undoubtedly this beetle can do considerable damage to young palms and where replanting is undertaken a strict control should be kept of all likely breeding places and a periodical examination made of all young palms

In February 1949 a batch of 25 scoliid wasps, *Scolia ruficornis*, a parasite of the oryctes larvae, was received from Zanzibar. The consignment consisted of 5 males and 20 females. Owing to their small number it was thought advisable not to release them but to keep them in confinement in contact with oryctes larvae for breeding. Early in 1950 some new wasps emerged from the breeding heaps and were distributed amongst planters. Owing to the long life-cycle of the wasps, which may amount to as much as twelve months, it is considered that progress might only be achieved by liberation of large numbers of wasps in badly affected areas. Arrangement have been made to obtain a larger consignment of wasps from Zanzibar in 1950.

(d) Coccidae.

As reported last year and the year before, these are no longer a major pest of the coconut groves, being effectively kept under control by the coccinellid beetles introduced from East Africa some twelve years ago.

(e) The Giant Snail.

Two species of giant snails, *Achatina fulica* and *A. panthera*, have been present in the islands over a century. They were introduced from Mauritius and come originally from Madagascar. These snails constitute serious pests of flowers, seedlings and vegetables; they are not a plantation pest. It is stated that the shells of the species *panthera* have reddish-pink columellae while in *fulica* the columella is bluish-white. This distinction holds good for fresh specimens but the pink colour often fades in dead shells. Preventive measures include destruction with meta baits, construction of slit-trap trenches round plots, and paid collections by children. The use of meta-fuel in baits of maize bran is very successful and provides good protection to flower and vegetable gardens.

(f) Livestock Diseases.

On the whole the health of cattle and other livestock remained good except for the usual cases of loss of condition due to mal-nutrition and minor elements deficiency. Poor condition of cattle commonly occurs on " plateau" land, but results obtained from the use of mineral salts, added in small quantities to the rations, are promising. No serious outbreak of disease amongst cattle occured during the year. A newly imported herd of Friesian heifers, at the Government Dairy, Union Vale, suffered from an attack of cow-pox. Strict and speedy steps, including isolation of infected animals and vaccination of the remainder of the herd, were taken, which resulted in the control of the disease within two months of its detection. The outbreak is suspected to have occured through human agency. A few cases of mamitis and tympanitis of the hoven occured in Government and privately-owned herds. Cattle dipping tanks exist on the majority of Government farms and operated during the year. This ensures freedom from ticks. It was found necessary in several instances to reduce the dipping period from fourteen to seven days.

10. Food Production.

As reported last year the food production of the Colony is not entirely satisfactory. Green vegetables are scarce and are available only during the South-East monsoon period. Maize and rice, the staple food of the popu

lation, have to be imported. Nearly the whole supply of vegetables and milk to the Town of Victoria is produced on Government farms. The green vegetables raised consist of cabbage, lettuce, chinese cabbage, french beans, the long bean and spinach. The main root crops are sweet potato, cassava and the greater yam; also carrots, beetroots and Jerusalem artichoke. The Government dairy farm at Union Vale supplies Victoria and the surrounding district with nearly all its milk requirements.

As in previous years vegetable seeds imported from South Africa and the United Kingdom were made available, and for the first time to planters and landowners at Praslin and La Digue. This resulted in a large increase in vegetable production on these islands. Experimental and demonstration gardens were opened at two places in Mahe and caused considerable interest.

Steps are being taken to improve the food situation and to reduce importation of the costly maize. A scheme is in view to be implemented from Grand Anse Estates funds, during the three coming years, for terracing and planting 300 acres of hill-sides on the Grand Anse Government Estates. It is hoped that a large crop of maize on these terraces, which, with that raised on the outlying coral islands during the rainy North West monsoon, will replace a large proportion of the imported maize. This scheme is the first step towards a better land utilization in the Seychelles, as numerous foot-hills and intermediate slopes, now unproductive, might be terraced and irrigated and made to produce quite a large part of the Colony's food-crop requirements.

Three vegetables that have proved very amenable to cultivation are dry onions, lady's fingers (lalo) and jerusalem artichoke (*Helianthus tuberosus*). It has been shown by trials that dry onions if allowed to mature during dry weather produce excellent crops and sell readily and may replace the imported product. The demand for lady's fingers is great and large quantities are sold readily when offered for sale in Victoria Market. Jerusalem artichoke, introduced early in 1949, grows well and on suitable land produces 10 lbs. of tubers per plant. This tuber may well have possibilities for feeding livestock.

Several varieties of spinach beet (silver beet) were introduced from South Africa and have proved very successful. It appears likely that this leaf vegetable may become popular for cultivation during the South East monsoon.

11. *Cattle.*

The cattle policy of the Department of Agriculture is to produce Sindhi-Friesian cross-breds which are known to be well adapted to the climatic and food conditions prevailing in the Colony. The various herds of (a) high-grade Friesian, (b) pure-bred Sindhi and (c) of Friesian Sindhi cross-breds necessary to carry out this policy are now being built. The breeding policy is expressed in the following table :—

A.	Sindhi bull x Sindhi cow	Pure Scindhi stock
B.	,, ,, x Grade Friesian	($\frac{1}{2}$ S + $\frac{1}{2}$ F) Cross
C.	Pedigree Friesian Bull x local or SF cross ...	($\frac{1}{4}$ S + $\frac{3}{4}$ F) ,,
D.	($\frac{1}{2}$ S + $\frac{1}{2}$ F) cross x Sindhi bulls	($\frac{3}{4}$ S + $\frac{1}{4}$ F) ,,
E.	Intercross the various crosses of the C and D progeny.	

It is hoped that the crosses ultimately obtained will fulfill the three requirements expected from a useful type of cattle in the Seychelles, namely : (i) a dairy type, (ii) a beef type and (iii) a working type.

A batch of 35 grade Friesian heifers and two pedigree bulls were imported from South Africa in January, 1949, and were quarantined at Long Island before being transferred to Union Vale Dairy, Victoria. This stock took sometime to become acclimatised to local conditions and some difficulty was experienced during calving. Two pedigree Sindhi bulls were imported from Pakistan in February of the same year. In October a start was made to sell cross-bred Sindhi-Friesian calves to the public. As mentioned elsewhere no great progress can be made in the dovelopment of the cattle industry in the Colony until an adequate supply of a suitable concentrated feed becomes available at an economic price. The shortage of livestock as a result of war conditions is marked and slaughter of cattle for sale as meat was only permitted by licences issued by the Department of Agriculture. The cattle population increased during the year, but the question of proper feeding was often difficult as the supply of maize bran and poonac was insufficient.

12. *Pigs and Poultry,*

The supply of pigs for slaughter improved. A herd of Large White pigs raised from stock imported from Kenya was built up at St. Anne Island, one of the Government farms. The policy is to produce Large White boars for distribution to pig keepers for crossing with local stock.

Small flocks of Rhode Island Red poultry were kept on Government farms and more particularly near Victoria, in order to secure close supervision. Settings of eggs produced are distributed to land owners and the balance sold at the controlled price of 10 cents each, the policy being to encourage the reproduction of the Rhode Island Red breed in the islands in order to improve local poultry. In general, poultry are in fair supply ; the local duck, particularly the muscovy-cross, are excellent table birds.

13. *Bees.*

A consignment of twelve queen bees, ordered in the Isle of Wight in November 1948, was received in July 1949. Three of the bees arrived dead and the others were distributed to local bee-keepers. These bees had been flown from the United Kingdom to Mombasa, where they were shipped to Mahé on a steamer of the British India Steamship Co. Another order for Italian queen bees, which are reported to be better suited to local conditions, was also placed in November 1948, but could not be carried out by the end of 1949. The order has been renewed for 1950. Local bees lack fertility and pedigree bred queens must be imported from time to time to renew the hives.

Following questions put to Government by an elected member of the Legislative Council, investigations were carried out regarding the drowning of bees in toddy pots attached to coconut inflorescenses. It was agreed that on occasions large numbers of bees are drowned in toddy pots and that this may be attributed to the tapped coconut palm flower stalks (babas) and entrance to the bamboo pots remaining uncovered, and to the pots not being properly cleaned, the latter causing bees to be

intoxicated by fermenting toddy. Government was informed accordingly and it was recommended that to protect the stalk and entrance of the bamboo pots, the use of fine hessian cloth or protective metal band with wire gauze should be made a condition of issue of toddy licences.

SECTION II. WORK OF THE DEPARTMENT.

The work of the Department of Agriculture consists of :—

(a) Supervision of 4,000 acres of land known collectively as Grand Anse Estates.

(b) Control of same 3,500 acres of Unleased Crown Lands, made up of the forest reserves and catchment areas of Mahé, and Praslin and Curieuse. The Supervision of some 7,000 acres of land comprising the coral islands of Aldabra, Cosmeledo and Assumption situated about 600 miles South West of Mahé.

(c) Operation of the Central Distillery, Mamelles, where cinnamon leaves and other essential oil crops are distilled.

(d) Supervision of the Chemical Laboratory under the charge of the Agricultural Chemist where research work on soils is undertaken. Examination of samples of agricultural produce prior to export, and a variety of samples from the Excise Department and the public are examined, and reports issued.

(e) The running of a maize-crushing plant, operating at the Botanic Gardens, Victoria, where the total maize ration requirements of the Colony are crushed. Additional plant is due to be received in 1950 and it is intended to remove this work to a more suitable site at Union Vale.

(f) Supervison of the Botanic and Town Gardens of Victoria.

(g) Provision of advice and information to planters and land-owners on agricultural problems, including issue of agricultural leaflets and wireless talks. Control of pest ordinances and inspection of planting material arriving in and leaving the Colony.

(a) Grand Anse Estates.

Grand Anse Estates consist of the following properties :— (1) Grand Anse, (2) Anse Boileau, (3) Foret Noire, (4) Souvenir, (5) Union Vale, (6) St. Anne Island.

The main produce of the estates are coconuts and cinnamon. A dairy, supplying the town of Victoria with fresh milk, exists on Union Vale Estate. Souvenir estate, situated at 2,000 feet above sea level, is mainly devoted to vegetable and fruit production. Copra dryers or "calorifers" operate on all estates. A cinamon leaf oil distillery at Grand Anse estate fitted with three 500-kilo stills, deals with the cinnamon crops from the three Government Estates on the West coast of Mahé. Other produce of Grand Anse Estates are vegetables and root-crops which are distributed to Government institutions and sold in Victoria market at controlled prices, where they are in great demand. Sugarcane is grown for the production of bacca, the local beer. During

the year increasing quantities of cattle and pigs were sold for breeding purposes and a programme of work aiming at the production of beef and pork became well under way.

As during 1948, the Government Clinic at Grand Anse Estate operated throughout 1949. The Clinic is attended by a doctor and a nurse twice a week from Victoria Hospital. The patients treated at the Clinic comprise the labour force of the three Government estates of Grand Anse, Anse Boileau and Foret Noire and the population of the adjoining private estates and villages. The Clinic is very useful to the inhabitants of the Western part of Mahé, as the Anse Royale Hospital, where is situated the nearest Clinic, is several miles from Grand Anse.

The provision of creches at the Government Estates on the Western side of Mahé has proved very successful. Attendance varies from twelve to twenty-four children at each creche. Those women who wished to work on the estates were enabled to do so with full confidence that their children were well looked after by the nannies responsible for their charge. The surroundings of the creches were brightened by flower beds and the children provided with swings and seesaws. The Education Department supplied suitable coloured pictures. All children attending the creches were provided with a cooked meal daily and milk when available, from estate produce.

The Grand Anse Government school opened on 12th September with 75 pupils and the number increased towards the end of the year. The school was designed by the Government Architect and built by Grand Anse Estates personnel. The pupils consisted of children of the Government estates and of persons living in the vicinity. From the date of opening, the Education Department assumed control and provided the teaching staff and equipment.

The labour situation on the estates was generally satisfactory and the number of amenities provided has encouraged a settled labour force. Towards the end of the year it was possible to link up a water supply to many of the settlements, composed of model cottages, with the main irrigation schemes recently installed. This work will be completed during 1950. The introduction of a 40 hour week, started in July 1948, has proved successful and the majority of labourers worked the longer hours throughout the year.

Extended work was possible on the calcareous sandy "plateau", mostly under food-crop production, due to the purchase in March, 1949, of a 20 h. p. Standard Ferguson Tractor, fitted with a 2 — furrow plough, disc, harrows and ridgers. The tractor has proved most useful as the area under vegetables and food-crops was nearly doubled, resulting in increased production, especially of root crops. Other beneficial results were improvement of the labour position on the three West coast estates, where the tractor operates, and lower production costs. The latter feature is of special interest as cultivation of the "plateau" sands on these estates with hand labour has in the past been uneconomical and almost prohibitive.

Another acquisition which proved of value was a small power-driven sugarcane mill which was purchased from Mauritius. The mill which operates at Anse Boileau estate is staffed by the Bacca Club and crushes cane produced mainly on the Government estates. As may be expected

the mill is far superior to the ordinary wooden bullock-driven mills used locally, extracting nearly twice as much juice from a given weight of cane and running at a lower cost.

Irrigation works have been carried out during the year over the "plateau" areas of Grand Anse and Anse Boileau estates, the whole food-producing areas of these estates being now irrigated. The water is drawn from dams built on the streams flowing across the estates and is run in 4 inch pipes to the "plateaux" where it is distributed in 2 inch pipes. Some 200 acres of "plateau" land were thus irrigated in 1949. More "plateau" land of Foret Noire estate will be irrigated in 1950. It is also planned to irrigate part of the terraced hill-sides of Union Vale estate during 1950. These irrigation works are the realization of a scheme provided in the Ten Year Development Plan, the expenditure of which is borne by Colonial Development and Welfare funds.

Provision has been made to import in 1950 a coconut oil expeller plant, to be operated at Grand Anse estate, to crush up to one tenth of the Colony's surplus copra production. This will enable copra cake of good quality to be available for livestockfeeding, as the resultant poonac should contain approximately 6 per cent of oil. At present coconut oil, is expressed in wooden mills powered by oxen, with low efficiency. The extraction figure is 53 per cent, while the coconut cake contains some 30 per cent oil, which cannot be fed in any quantity to livestock. The acquisition of the Expeller Plant is essential for the fulfilment of the rapidly expanding programme of cattle, pigs and poultry on which the Department of Agriculture is engaged. The only other concentrated food now available is maize bran, which is an unbalanced food stuff and not obtainable in sufficient quantity.

With the use of the newly acquired Ferguson Tractor the cultivation of Sea Island Cotton was extended. Some 10 acres of "plateau" land was sown with cotton seed at Anse Boileau estate during the rainy North-West monsoon. The crop will be harvested in 1950 and samples will be sent to England. As reported in previous years, Sea Island Cotton does fairly well on the low-lying calcareous sands and provided that sufficient land was available might well prove a remunerative crop. Enquiries were made for a small hand-ginning-machine in order to produce suitable samples for valuation.

A further crop of soya beans (Ogden variety) was raised at Anse Boileau in 1949. This variety does well on the "plateau" soils if given manure and fertilizers. The crop raised during the wet North-West monsoon produces good yields of beans which are invaluable for inclusion in livestock rations and would have a large sale for local consumption.

A system of composting similar to the Indore Process started in 1948 was continued on an increased scale. Composting proved a valuable source of organic matter for the hungry sandy soils of the "plateaux" and is being facilitated by transferring all cattle byres to the flat land where the compost is most urgently required.

A survey of cacao trees on the Island was carried out and a number of trees of the forastero variety found with fruits of good quality. A small cacao plantation raised from selected seeds was started at Grand Anse estate. Although the inducement to attempt the establishment of a small industry in the Colony is considerable because of world shortage of this product, it is unlikely to prove worth while owing to a variety of unfavourable factors.

A large building programme was carried out on Grand Anse estates during the year. The buildings erected were; 45 labourers model cottages, a primary school, a reservoir, a cattle dipping tank and a cattle byre. Moreover a copra dryer, a large pig sty and the Vesey-Fitzgerald Rest House were started and are to be completed early in 1950. The model cottages built together with out-houses are of an approved type and afford hygienic conditions of life to the labourers on the estates. At Anse Louis Settlement, adjoining Anse Boileau estate, a further 5 cottages were completed, making 11 in all. This Settlement was designed to accommodate old persons from Victoria and to give them a home, and light work at Anse Boileau estate. The reservoir, cattle byre and cattle dipping tank were built at St. Anne Island. The reservoir supplies water to the main labourers settlement. The cattle dipping tank and byre are to accommodate the large herd of young Friesian-Scindhi crosses which is kept on the island and the steers fattened for market. Good progress was made with a large piggery at St. Anne Island which when completed will accommodate some 100 pigs. At Grand Anse estate the main work of building the Vesey-Fitzgerald Rest House was carried out. This Rest House is to be available to Government officers and the public and lies close to a beautiful beach.

In May 1949, the Grand Anse Estates Co-operative Thrift Society was started under the Chairmanship of the Director of Agriculture. The object of the Society is to provide facilities for employees at Grand Anse Estates and the Department of Agriculture to save money from their wages and overtime payments, which is invested in the Seychelles Government Savings Bank, paying interest at 2½ per cent. Monthly contributions are usually Rs, 1/— per member, deducted from wages fornightly. At the end of the year there were 133 members paying a monthly contribution of Rs. 140, and the total amount invested was Rs. 670/—. There is still room for much improvement, but a good start has been made and membership should increase steadily in future.

The total number of coconuts collected on Grand Anse Estates during 1949 amounted to 1,620,699, including the crop from St. Anne Island. Out of this 1,513,851 nuts were converted into copra, yielding 218.963 tons of copra. The quantity of copra exported was 174.625 tons and the quantity crushed for oil and copra cake was 41.600 tons. The average number of nuts per ton of copra amounted to 6,913. The comparative figures for 1948 are : 1,035,000 nuts collected, 960,980 nuts converted into copra and yielding 145.625 tons of copra, 116.926 tons of copra exported, 38.193 tons of copra crushed and 6,599 nuts per ton of copra. The total quantity of cinnamon leaves cropped on Grand Anse Estates during 1949 amounted to 343½ tons and the total quantity of cinnamon leaf oil distilled at Grand Anse was 2,295 litres The average yield of oil was therefore 6.681 litres per ton of fresh leaves. The total amount of sugar cane produced during 1949 was 441.341 tons. Out of this 249.273 tons were supplied to the Bacca Shops and 192.068 tons were crushed at Grand Anse and Anse Boileau and the bacca obtained therefrom was sold to the labour force of these and neighbouring estates. The average yield of bacca per ton of sugar cane was 66 8 bottles, (783 pints).

The production of milk at Union Vale Dairy during 1949 amounted to 172,285 pints of which 139,298 pints were supplied to the public at Victoria, the balance being fed to the large number of calves born during the year. Twenty-eight calves and the thirty-two pigs were sold to the public for breeding purposes.

The total amount of rootcrops produced included 13 tons of sweet potatoes, 11½ tons of cassava and 13½ tons of yams. Some 9,500 kilos of cabbages were also sold. The number of citrus fruits sold was 35,800.

(i) Grand Anse Estate.

This estate covers an area of 1,180 acres and produces coconuts, cinnamon, food crops, fruits and sugar cane. The coconuts are collected from palms growing on the "plateau" as well as on the hill-sides. The total number of coconuts collected during the year amounted to 319,304. These were converted into copra at Anse Boileau estate. As mentioned earlier in this report a copra dryer was started at the end of the year and is planned to start operations on 1st July, 1950. The opportunity was taken by using a number of boiler tubes to increase the surface of heat distribution and thereby securing more effective drying. The cinnamon leaf oil distillery deals with the combined crops of the three adjoining Government estates. A herd of some 50 head of cattle is kept, mostly pure Sindhi, prim arily to produce farmyard manure and compost for foodcrop and sugar cane production. Young stock is sold to landowners and surplus bulls castrated and transferred to St. Anne Island. Six labourers model cottages and the Government primary school were amongst the buildings erected during the year. An oxen-powered mill crushes surgar cane for the extraction of bacca which is sold to the labourers and others at the estate bacca shop.

(ii) Anse Boileau Estate.

The area of this estate is 1,023 acres and coconuts, cinnamon, foodcrops and sugar cane are grown. The total number of coconuts collected amounted to 535,540, which were converted into copra at the estate dryer. Two oxen-powered copra mills operate at this estate. The oil obtained is sold at Victoria market and the poonac residue is used for feeding livestock. Production of bananas for supply to Government institutions and the public is carried on extensively, mainly on the lower hill slopes. A mechanical sugar mill was installed during the year and is operated by the Bacca Club personnel. A large pig sty accommodates about 50 pigs consisting mainly of Large White and cross-bred animals. In addition to the distribution of young pigs to landowners for breeding a number are slaughtered for lard which is supplied to Government institutions and the lean meat sold locally. A herd of cattle about 40 strong is kept for breeding purposes and to produce farmyard manure and compost. The dipping tank was in use throughout the year and insured complete freedom from ticks. There was a good demand for accommodation at Anse Louis Settlement and almost all the cottages were occupied.

(iii) Foret Noire Estate.

This estate is 928 acres in extent and consists of land under coconuts, cinnamon, foodcrops, sugar cane and forest. The number of coconuts collected here during 1949 amounted to 192,954. A small herd of cattle was kept to provide farmyard manure and compost. During the year three labourers model cottages were built.

(iv) Souvenir Estate.

This small estate of approximately 200 acres is contiguous to Grand Anse Estate and situated some 2,000 feet above sea level. Owing to the comparatively cool climate at this height excellent vegetables and fruits are produced, especially oranges and pineapples. A small herd of cattle is kept to produce farmyard manure and compost for fertilizing the poor and coarse sandy soil. During the year four model cottages were built.

(v) Union Vale Estate and Dairy.

The area of this estate is 250 acres and is situated near Victoria. There is no flat calcareous "plateau" land and cultivation is carried out on the foot-hills and mountain sides. The main concern of the estate is milk production. During 1949 some 172,285 pints of milk were produced and most of it distributed to Government institutions and the public. Although every effort is made to ensure that the milk is produced under sanitary conditions and delivered in metal-topped bottles, it is proposed to install a pasteurization plant in 1951 to ensure unpolluted milk. The dairy herd is made up of grade Friesian cows, pedigree Friesian bulls and Sindhi cows and bulls. The pure bred and cross-bred calves born at the dairy are either sold to landowners or are transferred to St. Anne Island where they are raised for beef or breeding purposes.

The fodder for feeding the cattle is grown on bench-terraced hill-sides and comprises the following :— Elephant grass, Guinea grass, Dallis grass, Cassie (*Leucaena glauca*), sugar cane and sweet potato. The terraces are manured with compost, cattle manure and small quantities of sulphate of ammonia and sea-bird guano. At the end of the year a silage pit was dug and filled with some 50 tons of silage composed of immature maize plants. It is intended to feed this silage during the height of the dry weather, usually experienced in July.

The number of nuts collected was 80,985. Two labourers model cottages were built and a site selected to lay out a model village to house the labour force which so far have come to work daily from Victoria. A compost factory under charge of the Victoria Town Board was constructed by the Public Works Department. Night soil collected in the town is composted with vegetable matter and refuse and turned into a suitable fertilizer which is used both by Grand Anse Estates and the public. Production at the compost factory averaged 12 tons of compost per month.

(vi) St. Anne Island.

The area of St. Anne Island is 500 acres composed of sandy "plateau" and hills. The latter have generally gentle slopes and carry good stands of coconuts except where granite boulders protrude or on the higher slopes where forest trees occur. The island is thus primarily a coconut estate. The total number of coconuts collected during the year amounted to 501,916, all of which were converted into copra, except second-grade produce which was crushed for oil and poonac.

It is fortunate that much of the natural vegetation of the island is suitable as fodder for cattle. It is proposed to build up a large herd of cattle and pigs to produce meat and possibly in time butter and cheese

to be sold in Victoria. All calves born at Union Vale dairy are transferred to St. Anne Island after weaning. The young bulls, excluding selected animals for breeding, are castrated and fattened for slaughtering. A number of cows culled at Union Vale dairy are used to provide some milk to feed the pigs on the island. The pigs consist of Large Whites imported from Kenya in October 1948, and are being used to increase the pig stock. At present the demand for young pigs is considerable, but when the demand is satisfied the animals will be grown on for the Victoria market.

An exceptionally large building programme was carried out during the year. Fourteen labourers model cottages, a service reservoir, a cattle byre and a cattle dipping tank were constructed. A start was made to build a large piggery to be completed early in 1950. Water from the reservoir is lead by pipes to the settlement and is also linked to the cattle byre and piggery.

Plans were made to provide a Delinquent Boy's Home at a site on the far side of the island. This work will be completed early in 1950 and will be occupied by young offenders under the care of a Warden and an Assistant Warden. The boys will do field work and will be given training in Agriculture in order to prepare them for useful work.

(b) Unleased Crown Lands.

The more important unleased Crown Lands of the main islands comprise Bel Etang estate, 64 acres, at Mahé, the Central Forest Area at Mahé, 2,114 acres, Midlands estate, Praslin, 200 acres, Fond Boffay Crown Land, Praslin, 116 acres, Vallee de Mai, Praslin, 32 acres and Curieuse Island, 900 acres.

Bel Etang estate situated near the Botanic Gardens, Victoria, is occupied by Seychelles King's College, but still provides a quantity of vegetables for sale in the town.

The Central Forest Area of Mahé and Midlands estate, Praslin, are the principal catchment areas and forest reserves of these islands. Small quantities of timber are extracted from these reserves for local use, production being 46,440 feet of planks and 11,910 feet of posts. Fond Boffay Crown Land adjoining Midlands estate serves as a catchment area and forest reserve.

Special attention was given to the Vallée de Mai Reserve, Praslin, purchased in 1948. This Crown Land Reserve is about 32 acres in area and contains a close stand, estimated at over 4,000 palms of the famous endemic species Coco-de-mer, *Lodoicea Maldivica*, Pers. Of the Crown Lands at Praslin containing this palm in quantity are Midland Estate, Anse Marie-Louise and Fond Ferdinand reserves. At Curieuse Island, situated North of Praslin, relic patches and small groves of coco-de-mer occur.

Curieuse Island which also contains the Leper Settlement of the Colony is a coconut estate with forest reserve which in places has been badly eroded. The number of nuts collected during the year was 261,470 and some 29 tons of copra were exported.

A scheme has been adopted to operate for the next five years, commencing 1950, for the reafforestation of 3,000 acres of Crown Lands at Mahé, Praslin and Curieuse. The programme is part of the recommendations of Sumner Gibson, late of the Indian Forest Service, who visited Seychelles in 1937. The scheme is estimated to cost £23,000, of which £13,000 will be provided from Colonial Department and Welfare funds and the remainder from the Colony funds. Although the primary forests have nearly disappeared on most islands and have been replaced by exotic species interspaced with much land under low bushes, a reconstruction of the ecology of these forests is possible from early reports and from a study of the relic stands of the original vegetation. A broad classification into mountain moss forests, intermediate forest and lowland forest is generally agreed upon. Felling in all zones is reported to have started in the middle of the 18th century. At the beginning of the 20th century exploitation of the original forests of hard-wood timber was the main industry of the Colony, much of the timber being exported to Mauritius. With the coming of copra and cinnamon the wanton felling of an already mutilated forest was increased. Reafforestation of these lands has been long deferred, but it is hoped that the programme now provided for may do much to improve these neglected arears.

The only Unleased Crown Land outlying islands are Aldabra, Cosmoledo and Assumption. Together with Astove, which is a leased Crown Land, they form what is known as the Aldabra Group of Outlying Islands. The outlying coral islands of the Archipelago may be divided into five groups, which consist of :—

(1) The Mahe group, consisting of Coetivy, Denis, and Bird, which are situated on the edge of and a short distance from the Mahe bank.

(2) The Amirantes, 130 miles South-West of Mahe.

(3) The Alphonse group, 250 miles South-West of Mahe.

(4) The Providence group, 420 miles South-West of Mahe.

(5) The Aldabra group, 630 miles South-West of Mahe.

All the islands of the South Indian Ocean can be classified into two classes, adopted by Fryer. These classes are :—

(1) Low-lying flat islands, known as sand-cays

and (2) Elevated coral reefs still in their position of growth.

Both types of islands are believed to have been raised above sea level by volcanic action, the corals from which the islands originated having grown on volcanic cones. Sand-cays were once elevated reefs which have been broken down to sea level after erosion by sea and rain and which have provided a foundation for sand to be piled up by waves and wind. Thus sand-cays have a solid coral foundation bearing accumulated sand. Many sand-cays of the Seychelles have become consolidated over large areas by the action of rain and guano. The consolidated sand is known locally as "paves" or "platins". Rain water, containing dissolved carbondioxide, has the property of rendering calcium carbonate soluble under the form of calcium bicarbonate. The latter may be re-deposited at lower levels in the sand as calcium carbonate, which acts then as a binding material around the sand grains, producing a sand

stone. Guano, which is formed in the tropics from the excreta of various sea birds, especially boobies and gannets, which abound on the sand-cays, reacts with the calcium carbonate of the piled up sand to produce a phosphatic rock. During this process of metamorphosis, solutions containing lime and amonium phosphate cement together the sand particles of the soil to form conglomerates. Elevated reefs also undergo a process of metamorphosis through the action of rain water and bird guano. Phosphates from the latter impregnate the corals which are turned into a kind of phosphatic rock at places. Rain water, on the other hand, dissolves the unchanged calcium carbonate, leaving the phosphatic rock under the form of characteristic sharp-edged pinnacles known locally as "champignons".

The greater part of the coral islands are planted with coconuts. It is estimated that some 6,000 acres of coral islands are under coconuts. The coconut palm does exceedingly well on the sand-cays, where the soil is enriched with guano, provided consolidation has not proceeded too far. The procedure on these lands is to break down the "paves" or "platins" to water level where the coconuts palms are to be planted and to fill the pits thus dug with sand, guano and organic matter. It sometimes happens that such pits must be dug between palms in the old plantations to enable the coconuts roots to reach water level, as the "paves" or "platins" have been reformed since the establishment of the plantations. On the elevated reefs no coconuts will grow. There is actually no soil on the elevated reefs, the islands forming a hard mass supporting a stunted and characteristic type of vegetation.

The principal produce of the outlying coral islands is copra. It is estimated that about one third of the copra of the Colony is produced on these islands. It is reckoned that the outlying coral islands produce from two to three times more nuts per acre than the granitic islands. The other produce of the coral islands, especially of the elevated reefs where no coconuts grow, are guano, salt fish, live turtles and turtle meat, calipee, fresh bird eggs and bird eggs yolk, hawksbill shells, and mangrove timber and bark from the mangrove forests that may exist in the lagoon of the island atolls.

Cosmoledo is an atoll situated 9° – 4′ South and 47° – 32′ East. Its land rim of elevated coral reef has suffered severe denudation, so much so that the atoll consists now of several islands and islets. The two important islands of the atoll are Menai and Wizard. The islands of the atoll cover an area of some 3000 acres. Aldabra, situated 9° – 22′ South and 46° – 44′ East, is the largest atoll of the Aldabra group. It is elliptical in shape and is 20 miles long and 4 to 5 miles wide. The ring of land is some 40 miles in circumference. The total land surface is some 30,000 acres in extent, an area as large as Mahe, the more important granitic island of the archipelago. Out of this surface, however, 99 per cent are exposed coral of no agricultural value. Assumption differs from Cosmoledo and Aldabra in that it is an island. It is pearshaped and measures about 4 miles in length and from one fourth to one mile in breadth. In constitution it does not differ from the other islands, being an elevated reef, though not hollowed out by solution with subsequent formation of a lagoon. Corals in the position of growth are abundantly represented everywhere. Assumption contained a large amounts of guano, much of which has been exploited. The quantity of guano now left on Assumption is estimated at 15,000 tons.

Until September, 1948, Aldabra, Cosmoledo and Assumption islands were leased to the Seychelles Company, of Mahe, who exploited the guano at Assumption and exported turtles, salt fish and other produce to Mahe. Previous to the termination of the lease (in April, 1948), Mr. F. Durocher Yvon, then Acting Director of Agriculture, proceeded on a visit to these islands together with Drs. J. F. G. Wheeler and F. D. Ommaney, of the Fisheries Department, Mauritius, with a view to ascertaining their natural resources and to making recommendations as to their future management. These officers expressed the opinion that the number of turtles captured should be reduced. Mr. F. Durocher-Yvon further recommended that the amount of high grade guano left on Assumption island should be kept as a reserve and released for local needs when occasion demands. As a result of these recommendations, Government resumed occupation of the islands in September, 1948.

Settlements were opened at Picard, Aldabra, and at Menai, Cosmoledo, for the collection of fish for salting, live turtles, calipee, mangrove timber and bark, and hawksbill turtle shells. Assumption island was not occupied, in order to encourage green turtles to breed in neighbouring waters. Similar rests will be given in turn to Aldabra and Cosmoledo for the protection of turtles.

It is hoped that when the opportunity occurs to survey the stands of mangrove trees at these islands since it appears that valuable reserves exist which may be in considerable demand owing to the shortage of timber in the Colony.

During 1949, the produce exported to Mahe from Aldabra and Cosmoledo was as follows :— live turtles 328, salt fish 16,170 kilos, calipee 163 kilos, mangrove bark 10,338 kilos, mangrove posts 10,800 feet, guano 53 tons, salt shark and skates 2,846 kilos and hawksbill shells 35 kilos.

(c) The Central Distillery.

The distillery, under the control of the Department of Agriculture, deals with patchouli and other essential oil material received from planters and dealers and on occasion cinnamon leaf from neighbouring Crown Lands. The year 1949 was one of greatly reduced activity. This may be attributed to the fall in market value of patchouli and certain other essential oils with a consequent lowering of production. The following table records the quantities of material dealt with during the past three years.

Weight of Material treated
(in kilos)

Material	1947	1948	1949
Patchouli leaves	94,534	23,191	9,883
Eucalyptus leaves	2,202	Nil	5,187
Cinnamon Leaves	17,584	9,860	10,293
Cinnamon Bark	Nil	4,321	Nil

Following a recommendation made by the Agricultural Board in 1946 a new still is to be added to the distilling plant. The still, of 300-kilo

capacity, was received in December, 1949, and will be erected early in 1950. The plant will then consist of two 300-kilo stills and a locally made 125-kilo still. With the acquisition of the new still full use of the Fraser water-tube boiler will be made which should ensure a more economical running of the distillery.

(d) Laboratory Investigations.

Work in the laboratory consists of analyses of produce prior to export, samples of fermented liquors for the Excise Department, and milk from the Government dairy, as well as examination of material from Government Departments and the public. Research work undertaken consisted mainly of analysis of soils.

(1) Routine Work.

A total of 342 examinations was carried out, involving some 1600. determination. Out of the 199 samples of fermented liquors submitted by the Excise Department, 92 were found to be la Purée. The percentage of samples found to be la Purée during 1949 is therefore 46.2. The percentages in 1947 and 1948 were 17.3 and 51.2 respectively. Of the 19 samples of copra examined during 1949, 6 were found to contain too high a percentage of moisture. Moreover, 45 lots of copra examined at the Customs sheds, Long Pier, by the Produce Inspector, were found to be either dirty and mouldy or to contain too high a percentage of moisture and were therefore declared unfit for export. The usual permits for the export of cinnamon leaf oil and cinnamon bark were issued. Two lots of cinnamon bark, containing too high a percentage of foreign matter and moisture, were rejected as unfit for export. As during 1948, an anti-termite insecticide was prepared in the laboratory and issued to the Public Works Department for treating public buildings.

(2) Research Work.

A study of the highly calcareous "plateau" soils, which is the Colony's most important series of soils from the agricultural point of view, was started in July, 1949, and was nearly completed by the end of the year. A report will be submitted early in 1950. Other soils series that it is intended to study during 1950 include the marshy calcareous soils at the base of foot-hills, hill-side lateritic soils and middle-slopes forest soils.

Early in 1949, a batch of sliced breadfruits were dehydrated at Union Vale, as a trial, in an ordinary copra dryer. The results were most satisfactory, the dried produce keeping in good condition as long as 6 months after dehydration. Some of the dehydrated slices were also stocked in empty petrol tins fitted with air-tight lids. By the end of the year the produce was still in good condition and found suitable for feeding livestock.

As already mentioned earlier in this report attention was given to possible means of control of *Melittomma insulare*, and *Oryctes monoceros*, two important coconut pests.

Surveys were carried out, during 1949, of insects apart from termites, damaging timber in Mahe. Specimens were collected and forwarded to the Imperial Institute for identification. Another survey was also carried out of insects attacking copra, stored at the Custom Sheds of the Long Pier, Mahe. Specimens were also collected and forwarded to the Imperial Institute for identification. The following lists contain the names of the various species identified :—

WOOD BORERS.

COLEOPTERA.

Cerambycidae. *Stromatium barbatum*, F.

HYMENOPTERA.

Apidae. *Megachile disjunctata*, D. T.

Eumenidae. *Odynerus* (*Rhynchium*) *seychellensis*, D. T.

COPRA PESTS.

COLEOPTERA.

Cucujidae. *Dermestes cadaverinus*, F.

Cleridae. *Necrobia rufipes*, de G.

LEPIDOPTERA.

Pyralidae. *Ephestia cautella*, Walk.

(e) Maize Crushing Plant.

As during previous years, the maize crushing plant operating at the Botanic Gardens, Victoria, crushed the whole Colony's import of maize. The crushed maize is distributed as a ration foodstuff throughout the islands. The maize bran obtained as a bye-product is purchased by the Grand Anse and other private estates and is used to feed livestock. Some 1,279,800 kilos of whole maize were crushed during 1949, yielding 1,067,671 kilos of crushed maize and 173,736 kilos bran.

(f) Demonstration Vegetable Gardens.

Two small demonstration gardens, situated at Union Vale and Mamelles, on either side of Victoria, were opened to encourage interest in vegetable production. During the South-East monsoon leafy vegetables, i.e. chinese cabbage and lettuce (variety Mignonette) were grown and found a ready sale in Victoria market. Later in the year, during the North-West monsoon, climbing cow peas and lady's fingers were raised. These crops also sold well in the market. In all cases large numbers of beds were planted with a sole crop in order to demonstrate market gardening rather than home gardening. The lack of this form of agriculture in Seychelles is very marked and consequently there is at all times a shortage of vegetables. On a plot of land adjoining the distillery at Mamelles a large area of land under grass was planted with the greater yam. It is encouraging to note that owing to distribution of "sets" of this valuable rootcrop many small areas of yams were planted by the public.

(g) Botanic and Town Gardens.

The entrance to the Botanical Gardens was considerably improved by the purchase by Government of a small piece of land fronting the main road, which was cleared and grassed over and planted with canna beds and flowering trees.

All open areas within the Botanic Gardens were cleared of weeds and rough grasses and brought into good condition by periodical grass cutting. Unsightly beds were closed in order to form vistas and give a greater sense of space. A number of the more modern varieties of bougainvillea were planted in open spaces, and groups of poinsettias introduced with the object of making these gardens more colourful. The Botanic Gardens though small, form a restful oasis in the town, and is much frequented by visitors from ships in the harbour. Many fine ornamental plants introduced into the Colony by the late Mr. P. R. Dupont, who was Curator of the Botanic Gardens for many years, are not represented and these are gradually being collected and planted as opportunity occurs. A collection of Zephyranthes was obtained from Singapore and these will in time form a welcome addition to the number of bulbous plants grown. These gardens contain a good collection of palms and pandani which form an attractive feature.

Town gardens and open spaces were kept in good condition. During the year a number of flamboyant trees were planted on the Long Pier and it is hope they will give additional colour to the harbour.

(h) Extension Work.

Advice and assistance was given to landowners when required and planting material distributed through the Headquarters of the Department. A number of radio talks were given over the Seychelles Broadcasting Station by several members of the Department. Four leaflets were published during the year entitled : Rat Destruction, Greater Yam, Maize, and Composting. These are all important subjects for the planting community and were issued with the object of encouraging attention to them.

SECTION III. LEGISLATION.

The following legislation was enacted during the year :—

Ordinance No. 4 of 1948 : An Ordinance to amend the manufacture and Export of Copra (Consolidating) Ordinance 1942 (Ordinance No. 8 of 1942).

Ordinance No. 36 of 1948 : An Ordinance to amend the Importation Animals Ordinance, 1929, (Ordinance No. 9 of 1929).

Ordinance No. 7 of 1949 : An Ordinance to amend the Employment Exchanges Ordinance, No. 3 of 1948, and the Employment Exchanges (Amendment) Ordinance No. 28 of 1948.

Ordinance No. 14 of 1949 : An Ordinance to replace the Copra Cess Ordinance No. 42 of 1948 and to establish and regulate a copra price stabilisation fund and a board for its administration.

SECTION IV. STAFF AND GENERAL.

Mr. F. Durocher-Yvon, Agricultural Officer, left for the United Kingdom in December 1949, to attend a course in agriculture at the School of Agriculture, Cambridge.

Several transfers were made in the duty posts occupied by Agricultural Assistants. With increased activity in the Department it was found desirable to place officers with initiative in key positions. Although the estimates provide for a number of Learners there was a lack of suitable candidates and facilities for an adequate training do not exist. This is a serious difficulty in securing a nucleus of personnel for the future. A scholar of Seychelles College was selected and left for the United Kingdom for education as an Agricultural Officer in the Colony.

Monthly Staff conferences were continued and gave the field staff and managers of Government estates the opportunity to discuss problems at Headquarters and hear talks on a variety of subjects by senior officers.

In January, Mr. F. Durocher-Yvon, Agricultural Officer, attended the East African Nutritional School, to which representatives from the East African territories had been invited. During his stay in East Africa Mr. Durocher-Yvon, visited many agricultural stations in Kenya and Uganda and had the opportunity of discussing agricultural and animal husbandry problems.

Mr. C. G. Eastwood, C. M. G., Assistant under Secretary of State, Colonial Office, and Chairman, Primary Products Committee, visited the Seychelles at the end of March, 1949. Mr. Eastwood met Heads of Department, Members of the Legislative Council, of the Agricultural Board, and other Associations as well as members of the public. As the Chairman of the Primary Products Committee, Mr. Eastwood attended a meeting of the Agricultural Board, at which he discussed with members various problems concerning the essential oil industry, and attended a meeting of essential oil distillers. Mr. Eastwood's visit was welcomed by the Agricultural community and the opportunity was taken to show him the work of the Department of Agriculture.

Sincere thanks are due to those members of the Agricultural Board, Fisheries Board and Board of Directors of Grand Anse Estates for help and advice during the year.

Department of Agriculture,
Seychelles, 30th June, 1950.

J. MILSUM,
Director of Agriculture.